

MISSOURI CONSERVATIONIST

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Serving Nature & You



Vantage Point

Conserving together

This past year was an exciting time for conservation! Missouri citizens, conservation organizations and Conservation Department staff worked together to produce solid results. I recently read a summary of 2006 conservation accomplishments, and the “summary” is eighteen pages long! Here are just a few examples that Missourians can be proud of:

▲ Missourians formed the 3,000th Stream Team. An excellent example of citizen-conservationists becoming active participants in monitoring our aquatic treasures.

▲ The one millionth student received Hunter Education training. The Hunter Education program, which began in 1957, relies heavily on over 2,000 volunteer instructors. In 2006, these instructors helped certify more than 27,000 students.

▲ Missouri’s 11-day, regular firearms deer season produced a record harvest of 235,054 deer, an increase of 12,725 from the previous record set in 2004. The total 2006 harvest will exceed 300,000 deer. A strong harvest helps maintain deer numbers at appropriate levels while also enhancing Share the Harvest, a partnership with the Conservation Federation of Missouri, meat processors and hunters who annually donate over 250,000 pounds of venison to less fortunate Missourians.

▲ Timber harvests were implemented on more than 12,000 acres of Conservation Department forest land to maximize benefits for wildlife habitat, ecological diversity and forest health. The timber sales, designed and managed by professional foresters using best management practices, also produced over 20 million board feet of valuable forest products.

▲ Acquisition of 505 acres near the St. Louis urban area to conserve over a mile of Jefferson County’s LaBarque Creek and its tributaries. This beautiful stream is worthy of protection for its excellent biological diversity, including over 40 species of fish.

The many conservation successes of 2006 can be credited to Missouri’s unique legacy of citizen-led, citizen-driven, conservation governance. It is through this nationally recognized model for conservation that together we will meet the many significant conservation challenges facing Missouri’s natural resources. Challenges include: invasive plants and animals that threaten native Missouri species, plant and animal diseases, balancing the needs of both abundant and rare wildlife, rapid development, and degradation of our stream systems.

The Department of Conservation exists to help



citizens advance their goals and interests in conservation. Recent surveys reveal more than 90 percent of Missourians express an interest in fish, forest and wildlife resources. The cornerstone of Missouri’s conservation experience is the recognition that natural resource protection is a balance between the needs of man and nature. Those of us who serve you in the conservation professions are grateful for the partnership that strong citizen support brings to meeting our challenges.

Together we can keep the outdoors important and keep conservation valuable to our state. I like the way Margaret Mead put it best, “Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it’s the only thing that ever has.” The most significant thing we can do is to provide all citizens with the opportunity to learn about and understand our natural world. Only then will the Next Generation of Missourians be prepared to face tomorrow’s conservation challenges. Experience tells us that this effort starts with individuals, spreads to communities and cities and, eventually, influences society’s decision-making.

As we head into a new year, it is appropriate to look back at 2006 and highlight recent accomplishments, but we do so with the understanding that real conservation progress is often measured in decades rather than years. The blueprint for the future is written in *The Next Generation of Conservation* (www.missouriconservation.org/conmag/2006/09/), the Department’s new strategic plan, providing the framework for conservation efforts for years to come. In 2007, please join us in making conservation progress in your backyard, your farm, your community and your state.

John Hoskins, director



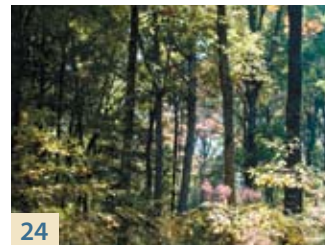
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MUSSEL POWER

Are any Missouri mussels suitable for human consumption? [Outside In; November 2006]

Maria Simone, Cole Camp

Editor's note: Freshwater mussels are eaten by raccoons, mink, otters and some ducks and fish. Humans can eat freshwater mussels, but should be careful.

The meat of freshwater mussels is tough compared to saltwater mussels. This is because most saltwater mussels attach themselves to rocks by strong filaments. Therefore, they do not need to use their body to dig into the river bottom like freshwater mussels do. This makes the freshwater mussel's "foot" tough. Since freshwater mussels also filter water from the streams they live in, they may contain contaminants.

For more information on Missouri's mussels, read Missouri's Freshwater Mussels by Sue Bruenderman and Janet Sternburg at www.missouriconservation.org/conmag/1999/08/40.htm.

TRANSLATION, PLEASE?

It has been quite some time since I have been on the farm. So, can you try to explain to a little old lady what a watershed, a riparian corridor, a glade and a revetment are?

Also, on page 23 of the December issue, what is the orange thing around the dog's neck?

Mary Alice Porter, via Internet

*Editor's note: A **watershed** is an area of land that drains into a particular body of water, such as a stream, river or lake. A **riparian corridor** is the strip of land and vegetation adjacent*

*to a streambank and usually back from the water's edge about 100 feet. A **glade** is a treeless and brushless clearing that may resemble a prairie and often has bedrock at, or just below, the surface. A **revetment** is a barrier—in this case [Don't Go With the Flow; December 2006], something to protect the stream bank from erosion, such as trees anchored along the bare bank. The **orange thing** around the dog's neck is an electronic collar used to communicate with and locate dogs in the field.*

EVERYONE LIKES DESSERT

I took pictures this summer of a downy woodpecker that took to visiting our hummingbird feeder. He showed up daily and apparently drank the nectar. Is this common or rare?

Craig Lingle, via Internet

Editor's note: According to Andy Forbes, Department of Conservation ornithologist, what you describe at your hummingbird feeder is not uncommon. Woodpeckers love the sweet sugar water in hummingbird feeders, and they will often visit them for a drink. Baltimore orioles will also do this quite often. Raccoons are also sometimes known to pop off the yellow "flower" guards and chug the sugar water. If woodpecker feeding is something you want to discourage, there are a few things you can do:

1) Feed woodpeckers and other birds as far away as possible from hummingbird feeders. You can also buy specially designed nectar feeders with larger holes that woodpeckers and orioles tend to prefer and put them in another place.

2) You can purchase smaller feeders or "mobile" feeders (like a mobile over a crib) that are too light for larger birds to land on but are no problem for hummers.

Otherwise, sit back and enjoy their antics!



POP! GOES THE VERBESINA

These delicate "blooms" occur during the first hard frosts each fall when moisture from the plant's still-active roots rises into the dried stems. Ice forms as the moisture squeezes through cracks in the stem and freezes into frosty ribbons. Native Missouri wildflowers that mature late in the year, such as yellow ironweed (*Verbesina alternifolia*) and white crownbeard (*Verbesina virginica*), are good frost flower prospects. Frost flowers often shatter if touched. These were photographed at Taum Sauk State Park by David Hillquist of Arcadia.

Ask the Ombudsman



Q: When are you going to start offering preference points for managed deer hunts? I've put in year after year and never been selected.

A: We will be implementing a change for the 2007 season.

Managed deer hunts are popular with many hunters. These hunts are held in a variety of locations around the state to provide a unique hunting opportunity and, in some locations, such as state parks, community parks and refuges, to control deer

numbers. Due to limited space, managed hunts can accommodate only a certain number of hunters, so a random drawing process is used to determine who will get to hunt at these areas.

Hunters may apply for only one hunt, and the random drawing process has ensured that everyone has had the same odds of being selected. However, depending on the number of applicants for a hunt, the odds of being selected could be very low—3 percent last season for a hunt at Swan Lake, or very high—100 percent at Caney Mountain. See www.missouriconservation.org/hunt/deer/draw.htm for odds information.

For a long time, unsuccessful hunters have asked for special consideration that would help them get selected for managed hunts. The Department of Conservation hesitated initially because there was no way to be fairer than giving all applicants the same chance. Another justification for a totally random process was simplicity. Any type of point system would be administratively difficult.

With current advances in technology, the Department feels that some help can be provided to unsuccessful applicants for managed hunts by implementing a weighted, random selection process. Hunters will now have their names entered into the random drawing an additional time for each year they are not selected. So, those who miss out in 2007 will go into the hat two times in 2008. If they are again not selected in 2008, their names will go into the hat three times in 2009 and so on, until they are selected.

Because it is important to encourage young and new hunters, successful applicants for managed hunts one year will still be allowed to apply the following season. To encourage parties to include persons who have fewer "points," the average number of points for hunters in a party will be used.

Details on deer season will be on the Department's Web site and at permit vendors this summer. If you are interested in managed deer hunts, please check out the information provided.

Opening day of the November portion of the firearms deer season will be November 10, 2007. Other season dates will be announced this summer.

Ombudsman Ken Drenon will respond to your questions, suggestions or complaints concerning Conservation Department programs. Write him at P.O. Box 180, Jefferson City, MO 65102-0180, call him at 573/522-4115, ext. 3848, or e-mail him at Ken.Drenon@mdc.mo.gov.

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NONTOXIC SHOT

It's the future of dove hunting
on conservation areas.

by David Urich

CLIFF WHITE



My friend and I were standing in the parking lot on the west side of the Columbia Bottom Conservation Area in St. Charles County at 11 a.m., and the temperature was already approaching 100 degrees.

It was opening day of dove season, and I was fortunate enough to have a hunting reservation.

We checked our supplies before leaving our vehicle. My backpack contained some snacks, a gallon and a half of water and two boxes of steel shot shells for my side-by-side shotgun. I knew I would need the water because the temperature was forecast to be near 105 degrees by mid afternoon.

Because of the excessive heat, I had left my Labrador retriever at home. I couldn't possibly carry enough water for myself and an 80-pound dog that insists on wearing a heavy black coat, no matter what the weather. Besides, he is such a sloppy drinker that I knew he would waste most of the water.

I don't like hunting without my dog. It seems unnatural and lonely. We are a team and he is a good companion, although I seem to do most of the talking when we sit down for breaks together. I'd just have to retrieve my own doves today.

Dove hunting on Columbia Bottom is traditionally excellent. Hunters must apply for a reservation in advance, and hunting begins at 1 p.m. Access to the area is by foot or bicycle only.

We began our walk and saw other hunters heading out to partially mown sunflower fields, where a combination of seed and bare ground attracts doves. It was a 3-mile walk from the west side of the area to the Mississippi River on the east side, where most

of the managed dove fields were located. But there were plenty of doves flying by the first sunflower field that we came to, so we stopped there and hid ourselves in the tall, unmown sunflowers.

I loaded my gun with two steel shot shells. Nontoxic shot has always been required for dove hunting on Columbia Bottom Conservation Area.

The Nontoxic Advantage

During a typical dove hunting season on Columbia Bottom Conservation Area, hunters will shoot about 32,000 shells, each containing an average of one ounce

Research suggests that the loss of doves from lead poisoning may equal or exceed the legal dove harvest.



Most shot shells sold for hunting are used for doves, but leftover shot may also poison other birds species.

of shot. That works out to 2,000 pounds (or a ton) of shot deposited on the ground each year.

Studies have shown that up to 6 percent of the doves feeding at Columbia Bottom could die from lead poisoning each year if nontoxic shot were not required for hunting.

The nontoxic shot regulation also helps waterfowl. In coming years, many of the dove fields at Columbia Bottom will be restored to wetlands similar to those that were common along the Missouri and Mississippi rivers before the construction of levees and conversion to agricultural fields. Because of the nontoxic shot regulation, there won't be any lead shot to threaten waterfowl that visit the restored wetlands.

Nationally, most shot shells sold for hunting are expended on doves. That means a lot of lead rains down on dove fields each dove season.

Because doves migrate during the hunting season, the birds have an opportunity to ingest lead shot each time they stop to feed during their journey. Research suggests that the loss of doves from lead poisoning may equal or exceed the legal dove harvest.

Doves and waterfowl are not the only birds affected by lead shot. Recent studies revealed that 31 species of birds, including game birds like ring-necked pheasants and northern bobwhite quail, can fall victim to lead poisoning. Avian scavengers, including eagles and hawks, that consume dead or dying lead-poisoned birds also risk death or sickness from lead ingestion.

Shelling Doves

The first dove whizzed by in front of me. I raised my gun and shot twice, missing both times. It takes me a while to get into the groove on the opening of dove season.

Like many hunters, I tend to shoot behind a flying bird, especially if I am not alert and prepared. I think steel shot gives me a little extra edge because of its speed.

Four more birds flew by before I got my first one. It was a good thing I'd brought two boxes of steel shot shells, but even that was not going to be enough for a limit if I didn't shoot a little better.

There were about 100 hunters out on the area the day we hunted. Dove hunting is popular in Missouri with about 35,000 to 40,000 hunters harvesting 700,000 to

Hunters and Nontoxic Shot

The mandatory nontoxic shot regulation was established for hunting ducks and geese in Missouri in 1990 and nationally during the 1991–92 waterfowl hunting season.

Fifteen years have passed since nontoxic shot was required for duck and goose hunting. In that time, not only have hunters adjusted to the different ballistics of steel shot, but more alternatives to lead shot have become available. Many are composed of different metallic alloys, including some that provide performance similar to lead.

Studies of waterfowl hunters have not documented a sustained increase in crippling loss due to the use of nontoxic shot.

In addition, guns are now equipped with barrels that will not suffer from long-term use of the harder steel shot.

The price of nontoxic shells also has come down, especially for 12- and 20-gauge shells. Hunters can even load their own nontoxic shot shells to save money or to improve performance.

750,000 doves annually. Conservation areas are important to dove hunters because they are convenient places to hunt, and they have good dove habitat.

The Department of Conservation promotes dove hunting by managing fields especially for doves on approximately 90 areas around the state. It even posts maps of field locations on its Web site.

Rules Changing

The Department of Conservation recently expanded the requirement for nontoxic shot on 21 conservation areas to include all hunting with shot and shotguns. The regulations go into effect March 1, 2007. These conservation areas have extensive wetland habitats and concentrations of waterfowl and shorebirds in the fall and spring. All hunters using a shotgun for turkey, dove, rabbit, squirrel or other upland game hunting on these areas must use nontoxic shot and may not possess lead shot.

Twenty-nine additional conservation areas are being reviewed for possible designation for nontoxic shot only, bringing the statewide total to nearly 50 of the 1,100 areas that we manage. Most of these conservation areas are located along the Missouri River, where periodic flooding makes spent lead shot available to migratory waterfowl, or the areas are near urban centers that have high hunting pressure for many types of upland game. Also in 2008, if approved by the Conservation Commission, all dove hunters on Missouri's conservation areas must use nontoxic shot.

The proposed nontoxic shot rule changes will apply only to lands administered by the Conservation Department.

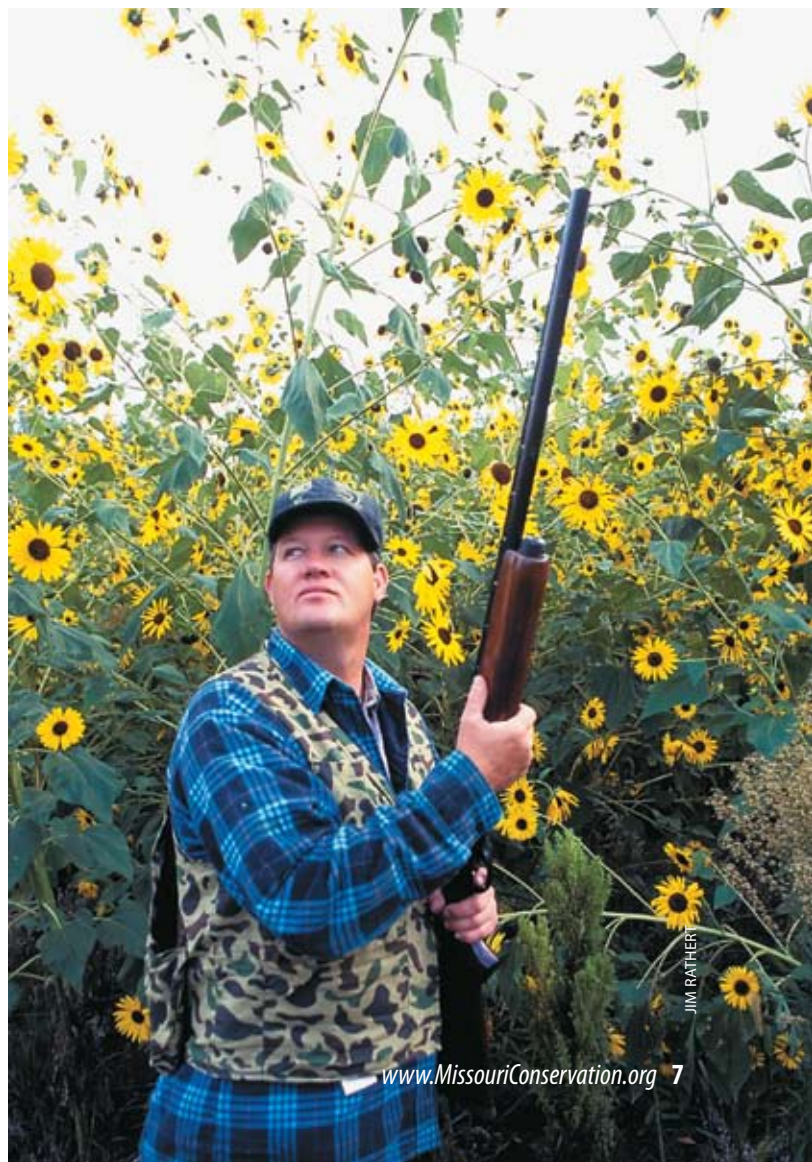
No Substitute for Labs

My shooting picked up, and I was approaching a limit. I decided to only shoot at birds that approached me from behind and flew out in front, this forced me to be more alert and challenged my shooting skills.

My hunting companion had a limit of doves and was sitting on a bucket next to me. It was a good thing he was done, because I had used up all of my shells and was working on his. He also would run out into the field to retrieve my birds for me with nearly the same enthusiasm as my Lab.

By late afternoon, I finally got my last dove and we began our walk back to the parking lot. We chatted with other hunters who had also finished up and were making their way back. Almost every hunter had taken a limit of doves that day.

I drank the last of my water just as the truck came into sight. The flying doves were thicker than when we started hunting several hours earlier. My friend and I had a memorable and unique hunt, but I have to say that I still missed my dog. ▲



JIM RATHER



Your Opinion Counts

Conservation Department
surveys help determine how
we can best serve you.



by Ron Reitz, Heather Scroggins and David Thorne, photo illustrations by Cliff White

Every day we come across statistics almost everywhere we look. From radio, television, newspapers, magazines and the Internet we learn such tidbits as “36 percent of people say cheese is their favorite pizza topping” or “22 percent of Americans don’t own a cell phone.” Such information is collected using surveys, usually by telephone or mail. Polling

companies ask the public for their opinions or preferences on almost every topic imaginable.

You may be surprised to learn that the Department of Conservation has its own small group of social scientists who research public opinions and attitudes about issues related to Missouri’s fish, forest and wildlife resources. This group is made up of experts in “Human Dimensions,” a field that is growing in importance, especially in fish and wildlife agencies.

Clockwise from top left: Biometrician Steven Sheriff, Resource Analyst Martha Tomlin-McCrary, Public Involvement Coordinator Shannon Cave, Survey Coordinator Ron Reitz, Natural Resources Economist Tom Treiman, Human Dimensions Specialist Heather Scroggins and Public Involvement Coordinator David Thorne



The Department's first social surveys were conducted in the early 1940s, and the Department's first social scientist was hired almost 30 years ago.

Natural resource management is just as much about managing for people as it is managing for turkeys, trout or trees. In its management decisions, the Department takes into account how decisions affect you, the resource user, and your recreational opportunities.

Human dimensions information comes from surveys, public meetings, focus groups and even Web polls. We ask Missourians about their views on the environment, outdoor recreation (including hunting, fishing, boating, hiking, horse-back riding, bird watching and other activities), and even how good of a job the Department is doing in managing the state's resources. Last year we contacted nearly 200,000 Missourians to get their input on various issues.

You might say, "Nobody asked my opinion." It's true we don't—and can't—contact everyone, but we think that through what is known as "sampling," we are able to learn what you likely think about fish and wildlife issues.

Sampling is similar to taking several small bites of a cake to learn what the whole cake tastes like. Surveys

Natural resource management is just as much about managing for people as it is managing for turkeys, trout or trees.

assume that an opinion held by one person is also held by others. If you ask enough people, you get a pretty good idea of what a group of people, whether landowners, anglers, hikers, hunters, homeowners, farmers, or even all Missourians or all Americans, think about any issue.

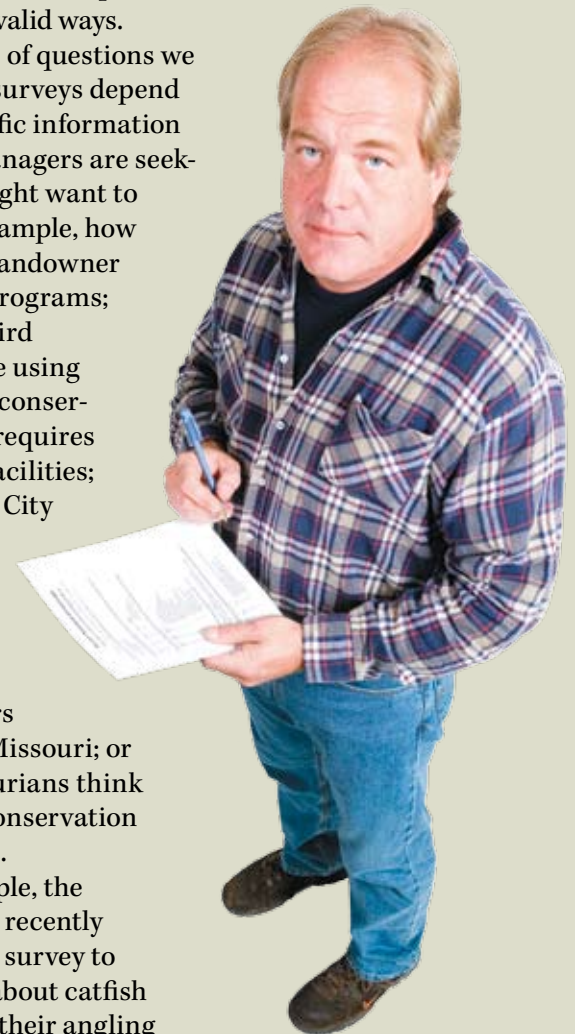
Have you ever wished to have the strength of 10 people? When you respond to a survey, thanks to the power of sampling techniques, you have the strength of thousands. Surveys work to represent even large groups of people. In fact, for simple questions, most surveys that are representative of all of Missouri's 5.8 million people can be accurately conducted with a sample size of 1,000. The results are almost exactly the same as if everyone had been asked and responded.

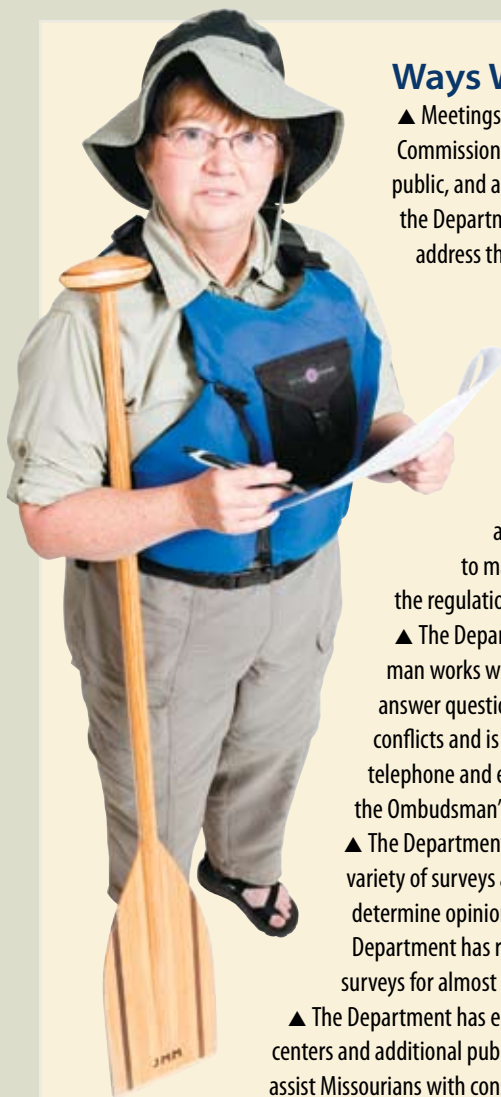
Mail Surveys

The Department of Conservation often relies on mail surveys to gather information about people and their preferences, attitudes, opinions and desires. Mail surveys are one of the most cost-effective ways to determine public attitudes and compare them in statistically valid ways.

The kinds of questions we ask in mail surveys depend on the specific information resource managers are seeking. They might want to know, for example, how to improve landowner assistance programs; how many bird watchers are using an area; if a conservation area requires additional facilities; how Kansas City residents feel about deer in their backyards; how many quail hunters we have in Missouri; or what Missourians think about the Conservation Department.

For example, the Department recently conducted a survey to learn more about catfish anglers and their angling





Ways We Listen

▲ Meetings of the Conservation Commission are open to the public, and anyone may contact the Department to request to address the commission at a meeting.

▲ Conservation Department regulations are formed and discussed in a public setting, and anyone may request to make a presentation to the regulations committee.

▲ The Department's ombudsman works with citizens to answer questions and resolve conflicts and is available by mail, telephone and e-mail (See the "Ask the Ombudsman" column on page 3).
▲ The Department conducts a wide variety of surveys and focus groups to determine opinions and attitudes. The Department has regularly conducted surveys for almost 30 years.

▲ The Department has eight regional service centers and additional public contact offices to assist Missourians with conservation requests and to answer questions.

▲ The Department conducts frequent public meetings and forums where Missourians can offer opinions and have their questions answered.

▲ You may write to the editor of this magazine at Magazine@mdc.mo.gov or ask questions through the Department's Web site, www.missouriconservation.org.

experiences. We learned that about six out of 10 Missouri anglers fish for catfish and about 75 percent of those prefer fishing for channel catfish and most are harvest oriented. These results reinforce the commitment the Department has made to stock and manage for channel catfish as a primary sport fish in most of Missouri's small public lakes since the 1960s.

We also asked anglers their opinions about potential regulations to improve catfish angling in Missouri. Without honest feedback from those who received our survey, there is no other way we could get this type of

information. We discovered that 46 percent of our catfish anglers would support restrictive length limits if it increased their chance of catching a big fish. Consequently, there is a component in our statewide catfish management plan to investigate those types of possibilities, and we have begun to evaluate the potential of some streams and large reservoirs to produce big catfish.

We regularly use mail surveys after hunting seasons to figure out where people hunted, how often, what types of game they hunted, and how many they harvested. Surveys are the only way we can estimate the harvest of game species, such as squirrels, rabbits and doves, that are not required to be physically checked or checked by telephone.

Hunter distribution and time spent afield are also important pieces of information required to effectively manage game populations, seasons and habitat.

Deer biologist Lonnie Hansen realizes the importance of knowing what the public wants

The Department of Conservation often relies on mail surveys to gather information about people and their preferences, attitudes, opinions and desires.





and how to incorporate those wants into effective deer hunting regulations. He attends numerous public meetings around the state to hear concerns and get suggestions on ways to improve deer hunting while minimizing damage caused to crops, home landscaping and vehicles.

According to Hansen, deer management involves equal mixes of biology and sociology.

“Deer hunting regulations must be biologically sound,” he said, “but they also have to have the support of Missourians to be effective.”

We also use surveys to learn how well the Department is meeting the needs of all Missourians. A recent survey asked Missourians about a wide variety of conservation issues. In that survey, more than two-thirds of Missourians rated the job the Department is doing as “Excellent” or “Good” for the state. Most Missourians (93 percent) said they are interested in Missouri’s fish, forests and wildlife.

And the major obstacle keeping Missourians from participating in outdoor activities is “Not enough time.”

This information and much more was used last year by the Department to help prepare plans for future work.

By balancing the well-being of Missouri’s fish, forest and wildlife resources with the desires of the public, the Department of Conservation will continue to provide quality public service and resource management.

Just like a business would prepare ice cream flavors based on what customers demand, the Department of Conservation used the opinions of Missourians to develop future plans for conservation. You can read about those plans in the publication *The Next Generation of Conservation*, which is available on the Department’s Web site at www.missouriconservation.org/conmag/2006/09/ or by contacting the Department.

Focus Groups

Focus groups are also useful tools for gathering information and opinions. A focus group is a small group of people who are asked their opinions. Talking to people in a group setting not only allows them to share their opinions with us, but lets them explain to us the reasons why they feel the way they do. We have conducted focus groups on diverse topics, ranging from urban young people’s conservation attitudes, to minority perceptions of the outdoors, to the use of horses on conservation areas.

In the early 1990s, the Department gathered together focus groups composed of minorities adults from the St. Louis area. We learned that few urban minorities knew about the Conservation Department or received its magazine, the *Missouri Conservationist*.

We also learned that fear of racial intimidation or random violence in rural areas and a lack of experience in outdoor activities kept urban minorities from spending more time in outdoor recreation.





What You Say About Conservation

▲ The majority of Missourians feel the Department of Conservation is doing an excellent or good job of providing services to themselves (64 percent), their families (63 percent), the community (61 percent) and the state (67 percent).

▲ Most Missourians (73 percent) agree that land should be acquired for fish, forest and wildlife conservation.

▲ When asked about the less than 2 percent of Missouri's acres that are owned by the Department, only 2 percent of Missourians report this is "too much."

▲ Most Missourians agree that it is important for outdoor places to be protected, even if they don't plan to visit them (91 percent).

▲ Almost all Missourians report they are interested in Missouri's fish, forests and wildlife (93 percent).

▲ Most Missourians enjoy wildlife around their home (82 percent).

▲ Most Missourians (88 percent) approve of hunting for food.

▲ Missourians are outdoor-oriented, responding that they enjoy watching programs on TV about the outdoors (80 percent); walking in their neighborhood (76 percent); reading about nature and wildlife (73 percent); gardening (62 percent); feeding birds and wildlife at home (61 percent); using Department Conservation Areas (59 percent); fishing (51 percent); camping (38 percent); boating (35 percent); pistol or rifle target shooting (30 percent); and hunting (26 percent).

▲ When asked about their need for activities within 20 minutes of their home, 63 percent reported "hiking and walking trails," 60 percent "picnicking," 59 percent "Nature Center or nature viewing," 54 percent "boating or canoeing," and 51 percent "fishing or camping."

Department staff used these comments and the suggestions from the participants to expand mailings of the magazine, offer more group programs in urban areas, and to expand nature centers and facilities that welcomed all urban residents to learn more about conservation and the outdoors.

Recently, focus groups pointed out many of the strategies northern Missouri landowners are using to increase quail numbers. Popular activities are planting food plots, providing supplemental feed such as shell corn during the winter and times of bad weather, and creating brush piles. The focus group's interest in increasing quail numbers led the Department to prepare a mail survey for landowners regarding quail management practices and the possibility of developing quail cooperatives.

Meeting Your Needs

Given the varied interests and activities of people and groups, we may not be able to please all of the people all of the time, but the Department of Conservation uses public input to create opportunities to please most of the people most of the time.

By balancing the well-being of Missouri's fish, forest and wildlife resources with the desires of the public, the Department of Conservation will continue to provide quality public service and resource management. We do this to ensure that future generations of Missourians will have the same great outdoor recreation opportunities and fish, forest and wildlife resources that we enjoy today.

You can help by carefully filling out any surveys you might receive from the Department of Conservation.

Your opinion always counts! ▲

When you respond to a survey, thanks to the power of sampling techniques, you have the strength of thousands.



A woman with short, curly blonde hair and glasses is sitting in front of a brick fireplace. She is wearing a light purple V-neck sweater and blue jeans. She is smiling and looking down at a marshmallow she is holding with a metal skewer over the fire. The fireplace has a wooden mantel and a black metal grate. To the left of the fireplace, there is a black metal stand with three gold-colored decorative finials. The background is a brick wall.

Home Heating

Use firewood to save money
and improve your forest.



by John Tuttle, photos by Cliff White

People have always been fascinated by fire. Whether in a campfire, cookstove or fireplace, the red flames seem to capture everyone's attention. Fire is also very useful. For as long as anyone knows, people have been using it to warm themselves and to cook their food.

Many people in Missouri cut firewood to heat their homes and other buildings. My family heated with wood when I was growing up in Shannon County. We cut firewood from tree tops and cull logs that were left behind from timber harvest operations. Whenever my father brought home a load of cull logs with his log truck, we would cut up the logs and split them so the wood would season before burning.

One of the first lessons I learned about firewood is to cut the wood several months before burning so the wood has time to season. Freshly cut firewood doesn't burn efficiently because it contains too much water. It also can cause a buildup of tarlike creosote inside the flue pipe that can lead to fires.

For best results, firewood should be cured for at least six months. The bark of properly dried firewood will be loose enough to pull off by hand.

Best Woods for Burning

How good the wood is for fuel depends on its density and moisture content. Any wood will burn, but denser (heavier) woods, if properly dried, will deliver more heat. Some folks also choose wood that is easy to split over wood that might burn well but is more difficult to split into firewood.

The species of wood that have the most energy content are Osage orange, hickory, locust, oaks, hard maples and ash. Woods with lower energy content include basswood, cottonwood, cedar, pine, silver maple, elm and sycamore. The table included with this article compares the basic heating value of different types of wood.

The amount of energy that you get from firewood very much depends on the efficiency of the stove, fireplace or furnace where you burn it. If you have an open fireplace, nearly all of the heat goes up the chimney. The fires may look nice, but they can actually cost you heat by drawing cold air into the house as heat goes up the chimney.

Fireplaces with glass doors do a better job, and a good fireplace insert increases efficiency even more. To get the most from your firewood, though, you need a high-efficiency wood stove. Wood stove technology has come a long way since we burned wood in the family home in Shannon County. Now you can find safe, non-



Improve the health of your forest by culling trees for firewood. Firewood should be cured for at least six months.

Cautions

- ▲ Always keep safety in mind when felling trees or using a chainsaw.
- ▲ Start fires with small amounts of dry kindling. Don't use flammable liquids that could explode or cause severe burns or house fires.
- ▲ Keep flues and stovepipes clean. Check them frequently for creosote buildup.
- ▲ Don't contribute to the spread of damaging insects by bringing in firewood from infested areas. Always try to use wood from local sources and keep an eye out for pests. For more information, visit www.missouriconservation.org/forest/features/firewood.htm to learn about and identify problem species, such as the emerald ash borer, Asian longhorned beetle, gypsy moth and the siren wood wasp. If you find a suspect insect, please contact us (see page 1 for a list of regional office phone numbers).

There's lots to know about cutting and burning firewood. For more information, contact your local forester or the University of Missouri Extension office. You can visit their Web site at <http://extension.missouri.edu/explore/agguides/forestry/index.htm>.

smoking stoves and furnaces that burn wood efficiently and circulate heat throughout the house.

Buying Wood

Different units of measurements—such as rick, rank, cord or pickup load—used by people to sell wood can cause confusion about how much wood you are actually getting.

The standard unit of measure for firewood is the cord, which measures 128 cubic feet. This may be 4 feet by 4 feet by 8 feet or any other combination of height, depth and width that when multiplied out yields 128 cubic feet. Some people call a third of a cord or a half of a cord a rick, even though that word really only means a pile of wood of no certain size.

Another common term used in selling firewood is a face cord, which measures 4 feet by 8 feet. The wood pieces in a face cord might be anywhere between 14 and 24 inches long. Obviously, the length of the wood, which is often not specified, determines how much fuel is

contained in the face cord. Rank and fireplace cord usually mean the same as face cord.

Missouri law requires that in any sale of firewood a bill of sale be provided showing the name and address of the purchaser and the seller, and the cords or fractions of a cord involved in the sale.

Cutting Wood

Wood you cut yourself warms you twice, as the old adage goes, both when you cut it and when you burn it. Cutting your own firewood has a third advantage of allowing you to improve the health of your forest.

Taking out unhealthy trees or poorly growing trees from your forest frees desirable trees from competition and gives them more opportunity to thrive.

When choosing trees to cut for firewood always look for undesirable species, low-forked or crooked trees, trunks with fire scars, swellings or bumps, spreading trees with excessive limbs or multiple trunks that sprout from a single stump.

Avoid trying to make your woodland look like a park by removing brush and small trees in the understory. Low-growing fruiting shrubs like ironwood, redbud and dogwood are important to wildlife. They provide food and cover without severely competing with the taller trees.

Nor, in your zeal to thin your forest, should you cut all of the den trees. Den trees provide homes for wildlife. Leaving a few dead trees (snags) per acre creates habitat for woodpeckers, bats and several other species of wildlife.

If you want to provide lots of cover and valuable food for many different species of wildlife, try removing all the trees around a field edge. This practice is called edge feathering. You can either cut the trees yourself and sell the logs or let a logger fell the trees. After the timber harvest, you'll have plenty of firewood in the form of tree tops and cull logs.

You can also take down trees to create openings in your forest. The openings will provide early successional habitat for wildlife, as well as places to view wildlife. Arrange any leftover wood that you can't use for firewood into brush piles, which provide outstanding habitat for small mammals.

Not for Everyone, But...

Given that wood is bulky, heavy, usually dirty and sometimes contains insects, it's easy to understand why



When you cut firewood, be sure to use the proper equipment. Also ensure that handles are firmly attached and cutting edges are sharp.

fewer people these days are burning wood to heat their homes. Firewood also has to be seasoned and requires a good deal of storage space. And, not many people want to get up in the middle of the night to start or stoke a fire in a stove.

However, heating with firewood can save you money over the long run, especially if you cut your own wood.

Firewood cutting can also create great memories with friends and family and result in healthier forests with better wildlife habitat. Finally, there's the charm of a wood fire which, as they now say about so many good things, is priceless. ▲

Heat Values of Various Woods

Species	Million Btus per cord*
Ash	23.6
Boxelder	17.5
Cottonwood	16.1
Elm	21.4
Hickory	29.1
Locust (black)	28.1
Oak, Red	25.3
Oak, White	27.0
Osage Orange	30.7
Pine (shortleaf)	19.0
Redcedar	18.9

*Heat is measured in British thermal units. One Btu equals the amount of heat required to raise the temperature of one pound of water 1 degree F.



Wetland Renaissance

Restore habitat and improve property with help
from the Missouri Agricultural Wetland Initiatives.

by Kevin Dacey, photos by Noppadol Paothong



Missouri had an estimated 4.84 million acres of wetlands during the 1780s, a time generally referred to as the “pre-settlement” period. Though this only represented 10 percent of the state at that time, less than 2 percent are in existence today.

Wetlands in Missouri were considered problematic wastelands and unproductive pieces of ground until the early 1900s. Approximately 2.5 million acres of bottomland forest in the Bootheel region of the state were cut or removed to accommodate competing land uses. Swamps, sloughs and other backwaters were drained, dredged and filled to build a more agriculturally productive state.

During the mid-1900s, wetlands became known as more than just wasteland. People discovered that wetlands offer recreational opportunities, critical wildlife habitat, improvements to water quality, temporary storage of floodwaters, and resources for education and research. Attitudes were beginning to change.

Wetlands are now recognized as important in our daily lives. In fact, 2006 was the first year in two decades that the United States had a net gain of wetlands instead of a loss, according to the most recent National Resource Inventory conducted by the Natural Resources Conservation Service.

Since the early 1990s, private landowners in Missouri have restored almost 130,000 acres of wetlands. A collection of restoration programs known as the Missouri Agricultural Wetland Initiatives (MAWI) has supported their volunteer efforts through financial and technical assistance.

Thanks to a partnership between federal, state and non-governmental agencies, MAWI is able to assist landowners in meeting their own resource needs while increasing habitat for many species of resident and migratory wetland wildlife. MAWI partners include the Natural Resources Conservation Service, the Farm Service Agency, the U.S. Fish and Wildlife Service, Missouri Department of Conservation, Ducks Unlimited, The Nature Conservancy and the American Land Conservancy.

The time is right for landowners to get professional assistance in restoring, enhancing or creating wetlands on their property. Here are some options to consider.

MAWI Programs:

The Wetlands Reserve Program (WRP):

Administered by the Natural Resources Conservation Service, a branch of the United States Department of Agriculture (USDA), WRP is often referred to as the “premiere wetland restoration program” in the country. This voluntary program consists of two main efforts, one with a conservation easement and one without.

Conservation easements are either perpetual or for a 30-year period. There is a one-time easement payment based on a geographic cap, an appraised value, or a landowner bid, whichever is the lowest. Cost share for the



Great blue heron



restoration is up to 100 percent for permanent easements and up to 75 percent for 30-year easements.

The non-easement portion of the program is an agreement for at least 10 years with cost share at 75 percent. Four Wetland Emphasis Teams (WETs) deliver this program statewide. These teams are a combination of Natural Resources Conservation Service and Department of Conservation personnel who are experts in restoring wetlands in the agricultural landscape. Landowners should contact their local county NRCS office, or visit www.nrcs.usda.gov/programs/wrp/ for assistance.

The Continuous Conservation Reserve Program

(CCRP): This voluntary program is administered by the Farm Service Agency (FSA), another agency under the USDA. CCRP assists private landowners with financial incentives to convert sensitive cropland acres to permanent cover and/or establish buffers. The NRCS provides conservation planning and practice implementation in conjunction with the landowner. Two practices offered through the program address wetland restoration or creation/enhancement: Shallow Water Areas for Wildlife (CP-9) and the Wetland Restoration (CP-23 and 23A) practices.

▲ The CP-9 develops or restores shallow water areas that average 6 to 18 inches in depth during the majority of the year. These are restricted in size and may not exceed 10 acres, including a required vegetated buffer. This program is tied to a contract for 10 years, cost shares up to 50 percent on the establishment of the wetland and associated buffer and provides annual payments based on soil types and rental rates.

▲ The CP-23 restores wetlands where wetlands once existed. The area must have a majority of wetland-type soils. Different practices are used for areas within and without the 100-year floodplain, the latter referred to as CP-23A. Vegetative buffers may be established as a component of this practice. Restoration of wetlands by filling field drainages, excavation, diking, removing/breaking tile drains or restoring woody or grassy vegetation are examples of these projects. There are no acreage limitations on the size of these projects, but there are acre limits for the state in total. This program is tied to a contract of 10 to 15 years in length, cost shares up to 50 percent on the wetland restoration components, an additional 25 percent incentive to restore hydrology, and it provides annual payments based on soil types and rental rates.

Interested landowners should contact their local FSA office or visit content.fsa.usda.gov/crp20/about_crp.asp.

The Continuous Conservation Reserve Program CP-23

Enhancement: A cooperative effort between Ducks Unlimited (DU) and the Missouri Department of Conservation (MDC) in which enrolled CP-23 practices are “enhanced” to allow seasonal flooding of adjoining crops. USDA has granted approval for landowners already approved to install the regular CP-23 practice to simultaneously “over-build” the practice to accommodate additional flooding capability. This program has two pilot focus areas:

- ▲ Middle Missouri (Ray, Carroll, Chariton, Saline and Lafayette counties)
- ▲ Confluence Area (Pike, Lincoln, St. Charles and St. Louis counties)

The enhancement will usually require more earthwork and possibly a larger water control structure. DU and MDC will provide 100 percent of the additional enhancement costs, not to exceed \$10,000. An agreement is signed with DU in addition to the FSA contract for the CP-23 practice. The length of this agreement is the same as the length of the CP-23 contract. MDC wetland services biologists deliver this program. Landowners should contact the Wetland Emphasis Teams located in the Fulton and Chillicothe NRCS field offices.

Partners for Fish and Wildlife Program (PFW): This voluntary program, administered by the U.S. Fish and Wildlife Service (USFWS), is designed to help landowners realize their goals of restoring fish and wildlife habitat on their lands, both through technical and financial assistance. Through partnership efforts be-



Least bittern



tween the MDC and by teaming up with other federal, state and local agencies and conservation organizations, the USFWS works with landowners to develop wetland projects for waterfowl and other wetland-dependant birds, plants and resident wildlife species. Funds are leveraged to cover costs through contributed funds, materials, equipment, labor and time to assist in the restoration project. At least a 10-year agreement is signed between the landowner and the USFWS. Landowners should contact the USFWS Missouri Private Lands office in Columbia or visit <http://ecos.fws.gov/partners/> for more information.

The Missouri Department of Conservation Wetland Development (MDC-800): A voluntary cost-share program to assist Missouri landowners restore, create or enhance wetlands on property they own. MDC wetland services biologists and private land conservationists provide the technical assistance, designs, water management plans and estimated cost lists for project completion. The practice is conducted under a 10-year agreement with cost share at 75 percent. Interested landowners should contact their local MDC office or visit www.missouriconservation.org/landown/ for additional information. ▲



Weeding Trees

**Learn how to get more value
out of your tree harvest.**



Of similar age but not similar diameter, these cross sections, or “tree cookies,” demonstrate the effect of competition on understory trees. The smaller, suppressed trees in the understory will never attain their optimum growth and value.

by Jason Jensen, photos by James Fashing

Farmers know that growing a crop involves much more than scattering seed on the ground and walking away. The forests on your property also are a kind of crop. Although they aren’t harvested annually, forests still require hard work to reap rewards. Managing your forest as a crop will increase the health of the forest, improve wildlife habitat and maximize your profits.

One method landowners can use to improve their forest is called crop tree management. It involves removing poor quality trees in order to provide more water, nutrients and sunlight to promote the growth of the remaining trees. Crop tree management focuses on the trees that are left to grow rather than the ones being harvested.

Cape Girardeau County landowner, Mark Nussbaum has been practicing intensive crop tree management for 10 years. He said he first looked at the species, quality and wildlife values of the trees present. His next step was “weeding the forest” by thinning the undesirable trees. This released the remaining “crop trees” from competition that would keep them from attaining their optimum growth and value.

This concept flies in the face of the practice of harvesting only large trees with the idea of “releasing” the smaller, presumably younger trees for growth.

Most forests in Missouri are even-aged due to previous heavy harvesting, and the small-diameter trees in a forest are often as old as larger trees. The trees are different sizes because some receive more sunlight, allowing them to grow at a faster rate.

Small-crowned trees that are overtopped by other trees are called suppressed trees. Many of our forests are dominated by suppressed oaks, which do not grow well in the shade of other tree species. What’s more, these trees have lost the ability for the crown to expand and, even if conditions improve, will only slowly grow in diameter. It is important not to select these suppressed trees as crop trees.

Selling Small Trees

Before your crop trees mature to their full value, you’ll be harvesting a crop of small-diameter wood. A good forest manager would take maximum advantage of this byproduct of crop tree management.

A lot of small-diameter wood becomes firewood. Although firewood sales in most areas are seasonal,



Products such as cabinets, flooring, pallets and industrial blocking can all be made from small-diameter wood.

there are ways to generate sales year-round. For example, landowner Doug Kulik, who lives north of Sam A. Baker State Park in Wayne County, sells most of his firewood to campers during the summer tourist months.

Two chip mills in Missouri buy tree-length wood down to about three inches in diameter on the small end. These mills produce hardwood chips that are used to make paper.

Solid-wood products made from small-diameter wood include lumber for items such as cabinets, flooring, pallets and industrial blocking. A recent study conducted by University of Missouri Extension Forester Hank Stelzer and the Missouri Forest Products Association concluded that current sawmill technology yielded 2 percent grade lumber, 17 percent flooring, and 81 percent pallet and blocking lumber from small-diameter wood.

Sawmills have been reconfiguring so they can create wood products out of smaller diameter wood.

"Five years ago the average diameter of the logs that we processed was 14 inches," said Jerry Lough, who

owns Canoak USA, located near Salem. "Today our average log measures approximately 10.5 inches in diameter. If we didn't adapt to these changes, there is no way we could stay competitive in today's markets."

Madison County Wood Products, located near Fredericktown, also recently reconfigured their sawmill to make use of smaller diameter wood. They can now process wood that is at least 20 feet in length and at least 5 inches in diameter on the small end.

At most mills it costs more to produce the same volume of high-value lumber and flooring from small wood than it does from larger logs. This could soon change, however. According to Stelzer, new sawmill technology is coming along that is capable of producing five times

greater volume of pallets and industrial blocking from small-diameter wood with operating costs less than half.

High oil prices also may add value to small-diameter wood. Technology currently exists to produce biofuels (ethanol and diesel) from wood fiber.

Often, the biggest challenge in making good use of small-diameter wood is finding economical ways to extract it from the forest and get it to the market or mill.

Potlatch Corporation announced this year that it was participating in a feasibility study for a proposed biorefinery pilot project at its Cypress Bend, Arkansas, facility. The proposed plant would convert forest and agricultural waste into biofuels.

According to company Vice President Harry Seamans, preliminary estimates indicate that the biorefinery could annually produce fuels equivalent to 1.6 billion cubic feet of natural gas and 80,000 MWH of electricity per year. That's enough natural gas to supply 20,000 homes and enough electricity to power as many as 8,000 homes!

Trees to Market

Often, the biggest challenge in making good use of small-diameter wood is finding economical ways to extract it from the forest and get it to the market or mill.

The Eastern Ozarks Forestry Council (EOFC) and the Conservation Department conducted a mechanized thinning trial of three different types of harvesting equipment.

Peter Becker, research coordinator for the EOFC, said the most efficient equipment combination for harvesting small-diameter wood is a "cut-to-length" harvester and forwarder. Although this equipment looks large and ungainly, it's extremely efficient and has a small footprint.

"It actually exerts less ground pressure than a person walking in the woods," Becker said.

The council and the Department are planning a wider trial of large-scale mechanized harvesting operations.

The study would take place over a much longer period of time, on a variety of different sites, and in forested stands of various sizes and densities.

Landowners may be able to use cost-share funds to get the trees cut through a timber stand improvement operation. Cost-share funds are

Forest Help

For help in managing your forest, contact a Missouri Conservation Department forester or a consulting forester in your area. Find your local Department forester by calling your nearest Conservation Department office or going to www.missouriconservation.org/forest/myforester-search.html.

Find a local consulting forester by going to www.missouriforesters.com.

Contact the Missouri Forest Products Association at 611 East Capitol Ave., Jefferson City, MO 65101, 573/634-3252 or www.moforest.org.

Go to www.showme.net/eofc to learn more about the Eastern Ozark Forestry Council or to view a full report on the Mechanized Thinning Trial.



Wood as small as 3 inches diameter is purchased by some chip mills in Missouri and used to make paper.

very limited, however, and competition is great.

The Missouri Forest Products Association is working on a study of Missouri's forest resources. MFPA Executive Director Brian Brookshire said, "The MFPA is very interested in developing programs that will result in the removal and utilization of small-diameter, low-quality stems from otherwise overstocked forest stands. Removal of such material can benefit both the forest landowner and the forest industry and result in healthy, sustainable forests that are growing at optimal rates."

The study also will help to ensure that our forest resources can support a refining facility designed to make use of forest biomass.

"We are not trying to replace any current markets by producing biomass," Brookshire said, "but, rather, add biomass to the existing suite of wood products already being produced in Missouri. We envision this material being used to generate power and produce cellulosic ethanol in the near future." ▲

MISSOURI DEPARTMENT OF CONSERVATION

Annual Report

Fiscal Year 2006



This summary of the Annual Report highlights the Conservation

Department's accomplishments and expenditures from July 1, 2005, through June 30, 2006.

These accomplishments are based on the three components of the Department's mission statement.

"To protect and manage the fish, forest and wildlife resources of the state."

New Strategic Plan: The Missouri Conservation Commission approved a new strategic plan titled *The Next Generation of Conservation* to ensure that the Department of Conservation will continue to conserve Missouri's fish, forest and wildlife resources for the benefit of the state's citizens. The plan identifies nine goals and specific actions that MDC will take to work with Missourians to achieve.

Taum Sauk Restoration: After the failure of the upper reservoir dam at the Taum Sauk hydroelectric facility in December 2005, staff have collaborated with DNR and project consultants on the design of the new stream channel within the state park and dealt with flow issues associated with the lower reservoir recovery activities. Additional work is underway to resolve habitat restoration and mitigation issues associated with the removal of sediment from the lower reservoir and East Fork of the Black River.

Fish Passage Improvements: MDC has led efforts to replace low-water crossings with clear-span bridge structures at selected locations in south-central Missouri. These efforts were designed to improve fish-passage for the Niangua darter, a federally and state-listed species of conservation concern, and other native aquatic species. County partners and their residents have also benefited through enhanced bridge stability and safety and reductions in the time and expense of county crews in debris removal and bridge repairs.

Cost-share Funds for Private Landowners:

Approximately 803 private landowners received nearly \$1.3 million in cost-share funds to implement habitat management practices for fish, forest and wildlife resources. The funds helped install 1,431 individual conservation practices.

"To serve the public and facilitate their participation in resource management activities."

Grants Help Volunteer Fire Departments:

MDC, in cooperation with the U.S. Forest Service, provided more than \$270,000 in grants to more than 140 volunteer fire departments. These grants help fund protective clothing, equipment and training.

Private Land Services staff made more than 7,000 on-site landowner visits to offer technical assistance to landowners who wanted help with habitat management plans and handled 3,968 requests for wildlife nuisance and/or damage assistance, including 883 on-site visits.

Share the Harvest: Conservation agents coordinate and support the Share the Harvest program with the Conservation Federation of Missouri, local charitable organizations and local meat processors. Approximately 5,100 hunters donated 267,000 pounds of venison to less fortunate Missourians.

MDC's Comprehensive Wildlife Strategy

(CWS) was approved by the U.S. Fish and Wildlife Service in October 2005. It is not a plan, but a way of approaching conservation planning and implementation that integrates projects and initiatives with conservation partners, other agencies and private landowners.

Telecheck was fully implemented during the fall 2005 deer and turkey season and spring 2006 turkey season with great success. It is estimated that hunters saved thousands of dollars on fuel (200,000 gallons) that would have been consumed in traveling to check stations. Information about the deer and turkey harvest was immediately available for enforcement and management—and at a much lower cost.

"To provide opportunity for all citizens to use, enjoy and learn about fish, forest and wildlife resources."

Stream Team Growth: The 3,000th team was added, and there were large-scale cleanups on the Missouri, Blue, Meramec and several Ozark rivers. Adopt-An-Access activities have doubled, and we continue to collaborate with canoe outfitters statewide to provide trash bags for floaters.

Dove Hunting: MDC has expanded the management of conservation areas to provide dove-hunting opportunities in more than 70 counties.

Connecting Urban Residents With Forests:

MDC collaborated with the U.S. Forest Service, Kansas Forestry Department and Bridging the Gap to launch the Heartland Tree Alliance. It was formed to connect Kansas City residents with their urban and community forests through participation in volunteer projects.

Educational Unit Developed: The first educational unit, "Conserving Missouri's Aquatic Ecosystems," was developed for sixth to eighth grades for the Learning Outdoor schools program.

Deer Hunting: Significant changes simplified statewide deer regulations and improved our ability to manage deer numbers. Changes included county-level management, unlimited antlerless permits in most counties, four-point antler restriction and an urban counties portion of the firearms season.

Community Assistance: Through the Community Assistance Programs (CAP) and the closely related Corporate and Agency Partnership Program (CAPP), MDC entered into agreements (usually 25 per year) with cities, counties, state and federal agencies, businesses, foundations, schools and colleges to provide fisheries management at existing lakes and ponds and to cooperatively develop and maintain facilities for anglers and boaters at lake and stream areas. MDC has agreements with 113 partners for the cooperative management of 145 public lakes, 41 stream-access areas, four lake-access areas and six aquatic resource-education ponds.

What the Money Bought—Fiscal Year 2006

County Assistance Payments—\$1,396,316 Included payments to Missouri's counties for levee and drainage district taxes, forest cropland payments, payments in lieu of real estate taxes and county aid road trust payments. Since 1980, more than \$11.75 million has been paid to Missouri counties in lieu of taxes.

Capital Improvements—\$31,881,332 Work included fish hatchery improvements, development of nature centers, river accesses, wetlands, shooting ranges, land acquisition transactions and renovation and repair of facilities statewide.

Fisheries—\$11,649,737 Managed 906 lakes and 40 stream management areas for public fishing. More than 840,000 people bought fishing permits, making fishing one of the most popular outdoor activities in Missouri. Fish hatcheries stocked 7.6 million fish in public lakes and streams.

Forestry—\$15,168,275 Fostered a healthy and growing forest resource. Examples include distributing 5 million seedlings for planting to nearly 13,000 landowners, developing 180 Landowner Forest Stewardship Plans, bringing an additional 29,000 acres under total resource management, managing 438,700 acres of public forest land, monitoring insect and disease threats and facilitating development of the state's forest industry.

Wildlife—\$16,219,278 Worked toward ensuring wildlife populations are in harmony with habitat and human enjoyment. Managed 526,198 acres of public land and implemented programs to maintain and restore natural communities and wildlife diversity across Missouri's landscape.

Outreach and Education—\$16,232,568 Sustained and nourished Missourians' connection to the outdoors by providing educational materials, schoolteacher contacts, outdoor skills programs, the *Missouri Conservationist* magazine, TV show, books, videos, informational programs, staffed shooting ranges and conservation nature centers.

Private Land Services—\$7,908,722 Helped private landowners to achieve long-term conservation of natural resources and their land-use objectives. Delivered nearly \$1.3 million in cost-share funds to 803 private landowners; provided on-site technical assistance to more than 7,000 private landowners; improved habitat for quail and grassland songbirds on more than 10,700 acres of private land; helped landowners enroll almost 6,400 acres into the Wetland Reserve Program; and assisted almost 4,000 private landowners in controlling nuisance wildlife.

Protection—\$13,640,869 Paid for law enforcement in every county as well as resource management, information, education and public service contact activities conducted by 167 conservation agents who directly contacted more than 625,000 people. Coordinated the Share the Harvest Program where more than 5,000 deer hunters donated more than 267,000 pounds of venison to less fortunate Missourians. Conservation agents, along with 2,200 volunteer instructors, conducted 1,024 hunter education classes, certifying 27,003 students.

Resource Science—\$12,095,061 Provided the science-based information needed to effectively manage Missouri's natural resources. Resource Science monitors the status of Missouri's fish, forests and wildlife, recommends conservation actions, evaluates these actions and reports the results. In addition to surveys of fish and wildlife, more than 200,000 Missourians were contacted to determine their outdoor activities and opinions about conservation programs.

Regional Public Contact Offices—\$4,345,058 Provided regional public contact offices.

Administrative Services and Human Resources—\$29,962,307 Paid for human resources, federal reimbursement administration, hunting and fishing permit point-of-sale system, fiscal services, distribution center, print shop, fleet management, vehicle and equipment maintenance centers and information management and technology. Also includes other agency appropriations, Department-wide equipment and other essential services.

Design and Development—\$11,526,041 Provided engineering, architectural, surveying and construction services for conservation programs and maintenance of conservation areas and facilities.

Administration—\$2,361,266 Paid for audits, legal counsel and the coordination of strategic planning, environmental policy development, cultural resource reviews, public involvement and river basin management.

RECEIPTS

Conservation Sales Tax	\$99,069,219
Permit Sales	\$29,723,302
Federal Reimbursements	\$24,387,069
Sales and Rentals	\$6,692,101
Other Sources	\$3,570,635
Interest	\$1,265,130
Total Receipts	\$164,707,456

DISBURSEMENTS

County Assistance Payments	0.80%
Capital Improvements	18.28%
Fisheries	6.68%
Forestry	8.70%
Wildlife	9.30%
Outreach and Education	9.31%
Private Land Services	4.54%
Protection	7.82%
Resource Science	6.94%
Regional Public Contact Offices	2.49%
Administrative Services & Human Resources	17.18%
Design and Development	6.61%
Administration	1.35%

MISSOURI STATE BUDGET

Health & Social Services	37.8%
Education	28.1%
Government Services	20.1%
Transportation	10.4%
Natural & Economic Resources	2.8%
Conservation	0.8%
<i>MDC represents less than 1% of the total state budget</i>	
Total State Budget	\$20,479,755,244



WILDLIFE REFUGE PHOTO CONTEST

Missourians who photograph nature at the Show-Me State's nine national wildlife refuges can enter digital images in the Refuge Photo Contest sponsored by the National Wildlife Refuge Association (NWRA). Winners will receive prizes worth hundreds of dollars.

The NWRA sponsors the contest to increase awareness of the national wildlife refuge system and give amateur photographers a chance to share their favorite images. Entries must be digital images, but the content can be plants, animals, insects, people, rocks or landscapes—anything found on a national wildlife refuge. Contest information and details about national wildlife refuges are available at www.refugenet.org. Entries must be submitted by Jan. 31.

Missouri's nine national wildlife refuges are: Big Muddy along the Missouri River in central Missouri; Clarence Cannon and Great River in Pike County; Middle Mississippi, 60 miles south of St. Louis; Mingo near Puxico; Ozark Cavefish in Lawrence County; Pilot Knob in Iron County; Squaw Creek in Holt County; and Swan Lake in Chariton County.

GO FISH! (Fish, Interpret and Share our Heritage)

The Conservation Department is fishing for a few good volunteers to help with its new GO FISH! angler education program. If you'd like to share your enthusiasm for fishing with kids ages 8 through 15 and introduce them to the wonderful world of sport fishing, we want to hear from you.

GO FISH! will be a multifaceted program that teaches children fishing skills from basic to advanced. We need volunteer fishing instructors and coaches to help kids fish at Bellefontaine Conservation Area in north St. Louis County, Forest Park in St. Louis City and Suson Park in south St. Louis County. The Conservation Department will hold instructor training workshops at Powder Valley Nature Center in Kirkwood on March 24. Volunteers must complete and return applications by Feb. 24.

For applications and more information, contact Denise Otto, phone 636/300-1953, ext. 243, or e-mail Denise.Otto@mdc.mo.gov.

November firearms deer harvest a record

Hunters set a new harvest record during Missouri's regular firearms deer season Nov. 11 through 21. The season total was 235,054, up 29,594 from last year and 12,725 from the previous record, which was set in 2004.

Experts attribute the record harvest to good hunting weather and abundant deer left over from last year's hunting season, when the number of does taken by hunters was down by 11 percent.

Top deer-harvest counties were Callaway, with 4,473 deer checked, Benton, with 4,411, and Pike, with 4,216.

Max C. Hamilton

Max C. Hamilton, renowned for his achievements in conservation and beloved for his outdoors-related writing, died at his home town of Chillicothe Nov. 12 following a brief illness. He was 89.

A lifelong nature lover, Hamilton was instrumental in the restoration of white-tailed deer and wild turkeys to Missouri. His turkey conservation work included terms as president, chairman of the board and trustee of the National Wild Turkey Federation (NWTf). He helped found the NWTf's first chapter in Missouri. He also was president of the Missouri State Outdoor Writers' Association and a recipient of the Conservation Federation of Missouri's Wildlife Conservationist of the Year Award.

He was outdoor editor for the *Chillicothe Constitution-Tribune* for nearly 50 years and continued writing weekly columns as the newspaper's outdoor editor emeritus for years following his retirement in 1995.

His boundless enthusiasm for conservation extended to his beloved farm northwest of Chillicothe, where he practiced what he preached. His greatest pleasure was wandering the property above the Grand River, basking in the natural beauty.





Farmer says CRP improves his bottom line

As Congress debates the next federal farm bill during the next few months, you are likely to hear about crop price supports and food and nutrition programs. What you may not hear is how the farm bill affects soil, water, wildlife, fish and forests. Missouri landowners receive approximately \$150 million annually through farm bill programs for implementing conservation measures on their land. This series will explore how the federal farm bill's conservation provisions benefit Missouri.

What difference does the Conservation Reserve Program (CRP) make? Karl Noellsch says it makes the difference between losing money and making money on some parts of his farm in Holt County.

CRP is a 20-year fixture in the federal farm bill that gives farmers cash incentives to take erosion-prone land out of crop production and manage it in ways that help wildlife. Since 1985, tens of millions of acres nationwide have been enrolled in CRP. Besides annual payments for each enrolled acre, landowners can get federal and state matching money to improve their land for wildlife through approved conservation practices—or “CPs.”

Like thousands of other farmers, Noellsch discovered that CRP does much more than protect soil and promote wildlife. He enrolled 65 acres in CP21, which is for “filter strips.” His grass strips, measuring up to 120 feet wide, slow rainwater runoff, halting erosion. Besides preventing soil loss, careful placement of filter strips allowed Noellsch to straighten field edges, making planting, cultivating and harvesting more efficient.

Noellsch also enrolled 10 acres as CP33 field borders. These 30- to 120-foot strips of native, warm-season grasses provide food and cover for quail, rabbits and other wildlife around field edges.

“What looked good to me was not having to farm these highly erodible acres,” he said. “It’s usually poorer soil, and you’ve got trees hanging out over it. We don’t make much money off those places.”

He receives CRP payments of up to \$115 an acre for enrolled land. In the past, the value of crops raised on those acres barely covered planting costs. “If you don’t grow anything, it pretty much zeros out,” he said. “This really helped my bottom line.”

Noellsch said the benefits to wildlife were significant.

“I’ll give you an example. This 180 acres where I am sitting, four or five years ago you might see one covey of quail. It didn’t seem like we were having much of a survival rate over the winter. This summer on this same 180, I have seen three coveys, and I suspect there are at least four. They were large coveys. That is very encouraging.”

Planning and technical services to landowners who enroll in CRP are provided by the Natural Resources Conservation Service and the Conservation Department. For more information about CRP, visit www.fsa.usda.gov and click on “Conservation Programs” or call the nearest Farm Service Agency office.

Branch out to learn about trees

Branch out and learn more about trees through a free course at St. Louis Community College at Meramec in Kirkwood.

TreeKeepers is a free, six-session introductory class on the benefits of trees and their care. A program of Forest ReLeaf of Missouri, TreeKeepers is funded in part by the Conservation Department. Classes will be held every Tuesday from 1 to 3 p.m. beginning Feb. 6 and ending March 13. The last session will be held outdoors.

Topics include tree identification, biology, planting and pruning, plus tree diseases and pests. The course is free, but participants are asked to provide 24 hours of volunteer service after graduation. This can be fulfilled through tree-care projects in participants’ communities or through projects arranged by Forest ReLeaf.

Enrollment is limited to 25, and pre-registration is required. For more information, call 314/984-7777 or 888/473-5323.

Gobbleteers sought

Does Missouri’s spring turkey hunting season match the second peak of turkey gobbling activity? Resource Scientist Jeff Beringer hopes to answer this question with the help of the Missouri Chapter of the National Wild Turkey Federation (NWTf) and a battalion of volunteer gobble counters.

Volunteer listeners will count the number of gobbles and the number of gobbling birds during a 20-minute period before sunrise twice a week between March 15 and May 15. “Gobbleteers” will choose their own listening locations.

The study will begin this spring and run through 2011. Beringer said it is important for people to volunteer for the study only if they feel confident they will be able to participate for the full five years. To sign up, e-mail Beringer at Jeff.Beringer@mdc.mo.gov. Type “Gobble Study” in the subject line and provide your name, address and county in the body of the e-mail.

Tom turkeys are most vocal just before hens become receptive to mating and just after hens begin incubating their eggs. This results in two peaks in spring gobbling. Volunteer reports will help Beringer determine whether the current timing of spring turkey season meets the goal of putting hunters in the woods during the second peak in gobbling. At present, the season opens on the third Monday in April.

The study also seeks to discover any relationships between gobbling and other factors, such as weather and spring leaf-out. The results will be published on the NWTf Missouri Chapter’s Web site.



Outdoor Calendar

Hunting

	open	close
Coyotes	5/15/06	3/31/07
Crow	11/1/06	3/3/07
Deer Archery	11/22/06	1/15/07
Furbearers	11/15/06	2/15/07
Groundhog	5/7/07	12/15/07
Pheasant North Zone	11/1/06	1/15/07
Quail	11/1/06	1/15/07
Rabbits	10/1/06	2/15/07
Ruffed Grouse	10/15/06	1/15/07
Squirrels	5/27/06	2/15/07
Turkey		
Archery	11/22/06	1/15/07
Spring	4/16/07	5/6/07
Youth resident only	3/31/07	4/1/07
Waterfowl	please see the <i>Waterfowl Hunting Digest</i> or see www.missouriconservation.org/hunt/wtrfowl/info/seasons	

Fishing

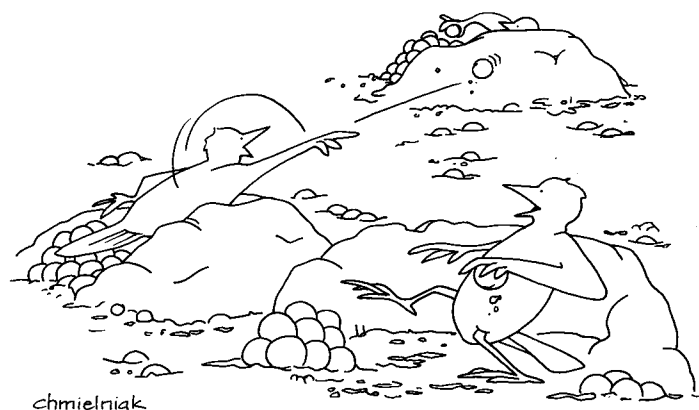
Black Bass (certain Ozark streams, see the <i>Wildlife Code</i>)	5/27/06	2/28/07
impoundments and other streams year round		
Bullfrog	Sunset	Midnight
	6/30/07	10/31/07
Gigging nongame fish	9/15/06	1/31/07

Trapping

Beaver	11/15/06	3/31/07
Furbearers	11/15/06	2/15/07
Otters & Muskrats	11/15/06	see <i>Wildlife Code</i>

For complete information about seasons, limits, methods and restrictions, consult the *Wildlife Code* and the current summaries of *Missouri Hunting and Trapping Regulations* and *Missouri Fishing Regulations*, the *Fall Deer and Turkey Hunting Regulations and Information*, the *Waterfowl Hunting Digest* and the *Migratory Bird Hunting Digest*. This information is on our Web site at www.missouriconservation.org/regs/ and at permit vendors.

The Conservation Department's computerized point-of-sale system allows you to purchase or replace your permits through local vendors or by phone. The toll-free number is 800/392-4115. Allow 10 days for delivery of telephone purchases. To purchase permits online go to www.wildlifelicense.com/mo/.



How birds establish their territories in winter.

Trees, shrubs galore available

From flowering dogwoods to witch hazel and red oaks to blackberries, George O. White State Forest Nursery has millions of seedlings for Missourians. Now is the time to order.

The facility near Licking has seedlings for improving wildlife habitat and forest resources. This year's catalog includes 13 species of oak, six of pine, black walnut, pecan and more than a dozen shrubs. Other tree seedlings available this year include tulip poplar, sweet gum, bald cypress, silver maple, river birch, black cherry and Kentucky coffee.

For the first time this year, the nursery has extra-large (approximately 3 feet tall) white ash seedlings. Other first-time offerings include nannyberry, a large flowering shrub that does well in shade or sun.

Shrubs available include flowering dogwood, smooth sumac, deciduous holly, redbud, wild plum, ninebark, elderberry, arrowwood, false indigo and buckbrush.

The nursery also sells the following seedling bundles with plant assortments for special purposes:

- The Wildlife Cover Bundle, with 10 seedlings of each of five species
- The Conservation Bundle, with 5 seedlings each of six species
- The Quail Cover Bundle, with 15 seedlings of each of five species.

A full list of trees and shrubs available through the state forest nursery is available at www.missouriconservation.org/forest/nursery. Or you can call 573/674-3229 and request a catalog by mail.

AGENT NOTEBOOK

Missouri's many dams serve as obstructions to the natural migration of fish. Usually, large numbers of fish concentrate below these dams year-round, but the concentrations are significantly higher during late winter and early spring, when fish moving upstream to spawn are blocked by the dams.

Most dams have fishing restrictions in effect immediately below them in order to protect the fish from overharvest. Restricted areas below dams vary statewide.

Every year, some anglers resort to fishing illegally in restricted zones in an attempt to harvest fish as they congregate below dams. Conservation agents know that dams attract both fish and fishermen and rigorously patrol the waters below dams. The result is a lot of citations issued for fishing in restricted zones and other violations.

Before fishing below a dam in Missouri, be sure to check the *Wildlife Code* (Rule 3CSR10-6.415 Restricted Zones). If you have questions regarding regulations below a specific dam, call your local conservation agent or conservation office (see page 1 for regional office phone numbers).

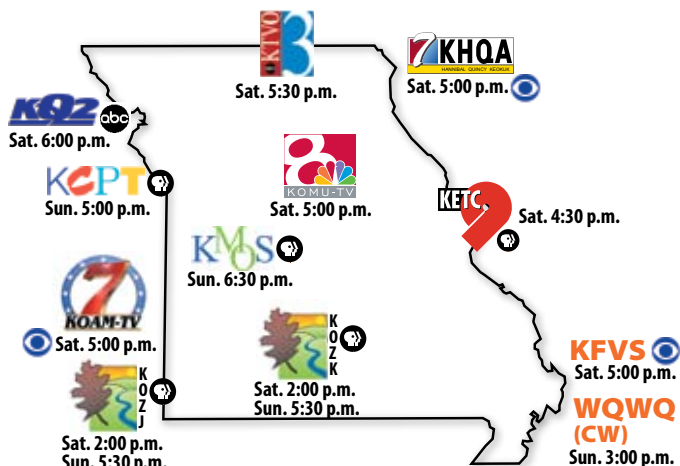
The restricted zones below dams are enforced to protect our fisheries resources from overharvest, and we should all do our part to help protect these areas from exploitation. —Darrell Walden, district supervisor, Camden, Miller and Morgan counties.





Program Schedule

Television the way Nature intended!



For additional show information and video clips, be sure to check our Web site at <http://mdc4.mdc.mo.gov/tv/>.

SHOW SCHEDULE

Jan. 6 & 7—QUAIL HUNT OPENER

Follow a quail hunter on his 68th-straight season opener.

Jan. 13 & 14—COPS

See how the outdoors provides the setting for some emotional moments.

Jan. 20 & 21—MORELS

Mushrooms, artists and agents highlight this show.

Jan. 27 & 28—BOBCATS

Take a peek at a rarely seen wildcat.

Feb. 3 & 4—COLUMBIA BOTTOM

Discover the outdoors in many ways at any age.

Feb. 10 & 11—CAVES

Journey down under for some caving adventures.

OTHER OUTLETS (Previously aired episodes are also shown on the following)

Blue Springs CTV7
Branson Vacation Channel
Brentwood BTV-10 Brentwood City Television
Columbia CAT3
Columbia Columbia Channel
Hillsboro JCTV
Independence City 7 Cable
Joplin KGCS-TV57
Kearney Unite Cable
Malden Ch 21
Maryland Heights MHTV-10
O'Fallon City Cable
Parkville GATV

Perryville PVTV
Platte City Unite Cable
Poplar Bluff Poplar Bluff City Cable
Ste. Genevieve Ste. Genevieve Cable
St. Charles SC20 City Cable
St. Louis Charter Cable
St. Louis Cooperating Schools Cable
St. Louis City TV 10
St. Peters St. Peters Cable
Springfield MediaCom
Sullivan Fidelity Cable
West Plains OCTV

Meet Our Contributors



Kevin Dacey has worked on wetlands for the Department for the past 23 years. Most recently, he has assisted the NRCS as a technical and biological coordinator for the Wetlands Reserve Program. He enjoys turkey, squirrel, deer and waterfowl hunting.

Jason Jensen is a resource forester and has been with the Department since 1992. He and his wife, Cindy, and son, Clay, live in Wayne County. His hobbies include hunting, reloading ammunition, target shooting and getting youth involved in the outdoors.



Ron Reitz is a resource scientist and the survey coordinator for the Department of Conservation. He and his wife, Kim, live in Columbia. He enjoys spending time at work, but in his free time he likes to hunt, fish, read and spend time outdoors.

Heather Scroggins is a resource scientist, and she has also has been the human dimensions specialist for the Department since 2003. She and her husband, Craig, are the delighted parents of a new baby daughter, Brynn. Their family lives in Columbia.



David Thorne is a public involvement coordinator for the Department, where he's helped staff discover the opinions of Missourians for 16 years. He enjoys most outdoor activities, especially walking and Dutch oven cooking. He lives with his wife, Mary, in Holts Summit.

John Tuttle became forest products program supervisor for the Department a year ago. Previously, he spent seven years as a resource forester and 18 as a professional logger. He lives in New Bloomfield with his wife, Regina, and children, Dustin, Brittany and Brooke.



David Ulrich is the Wildlife Division's Ozark unit chief and a 27-year employee with the Department. He lives on a 40-acre farm in Moniteau County where he and his wife, Jennifer, raised three sons. Rabbit hunting and fishing are among his many hobbies.



Winter Blues

Learn more about birds such as this male eastern bluebird by ordering the *Birds in Missouri* book available for \$30.00 plus shipping and handling, and sales tax (where applicable). To order, call toll free 877/521-8632 or visit www.mdcnatureshop.com—Noppadol Paothong



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Free to
Missouri households